DOCUMENT RESUME

ED 298 464 CS 009 316

AUTHOR Minery, Bonnie
TITLE Computer Reading Rate Course for College Students?
PUB DATE Jul 88
NOTE 67p.; Graduate Project, William Paterson College.
PUB TYPE Reports - Research/Technical (143) --
Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS College Students; *Computer Assisted Instruction; *Computer Software; *Freshman Composition; Higher Education; Reading Improvement; *Reading Rate; *Speed Reading; Time Management
IDENTIFIERS Sack Yourman Speed Reading Course

ABSTRACT

A study examined the influence of the computer management feature of a commercially prepared speed reading software package on the reading rate and attitudes of college students towards computers as instructional tools. Subjects, 66 college freshman from lower-middle to middle socio-economic brackets (and divided into control and experimental groups) enrolled in the College Reading and Rate Improvement Course of William Paterson College, had borderline reading comprehension scores on standardized tests. Both groups used the Sack-Yourman Speed Reading Course, with the experimental group using the computer program to calculate their reading rates and comprehension scores. Results indicated that both groups made gains in reading efficiency, but that the experimental group using the computer management features made greater gains despite negative attitudes produced by troublesome computers and a mid-course change of instructor. (Four tables of data are included, and 34 references and two survey instruments are attached.) (RS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Bonnie Minery
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED298464

COMPUTER READING RATE COURSE FOR COLLEGE STUDENTS?

A Graduate Project Presented to the Faculty of William Paterson College

Presented to:

Dr. Joan T. Feeley

Research in Reading

July 1988

Submitted by:

Bonnie Minery

CS009316

BEST COPY AVAILABLE

TABLE OF CONTENTS

CHAPTER I..... 1

The Problem..... 1

Purpose of the Study..... 2

Statement of the Problem..... 4

Definitions..... 5

Limitations..... 6

Significance of the Study..... 7

CHAPTER II..... 9

Review of the Literature..... 9

Summary..... 23

CHAPTER III..... 24

Methods and Procedures..... 24

Subjects..... 24

Setting..... 24

Sample..... 25

Table 1..... 26

Sack Yourman Speed Reading Course..... 27

Stanford Diagnostic Reading Course..... 30

Procedures..... 32

Collection of Data..... 34

Treatment of Data..... 35

Summary..... 36

CHAPTER IV..... 38

Results..... 38

Table 2..... 40

Figure 1..... 41

Table 3..... 43

Table 4..... 44

Discussion..... 46

Summary..... 48

CHAPTER V..... 49

Summary..... 49

Major Conclusions..... 52

Recommendations..... 53

REFERENCES..... 56

APPENDIX A..... 60

APPENDIX B..... 61

CHAPTER I

The Problem

The microcomputer is a useful tool for the development of reading efficiency according to Robinson (1983). However, McConkie (1984) and Paisley & Chen (1983) state the computer should not be used to train the eyes to move along by means of flashed percerptual exercises. Rather, whole-text presentations are preferred, where the viewer has control over the rate of display. They also recommend that students have sufficient familiarity with computers. Other studies indicate students will benefit if they can employ familiar work habits (Askwall, 1985; Hansen, Doring & Whitlock, 1978).

Some of the advantages computers offer as instructional aids are: increased student motivation (Schmidt, 1978); managerial aspects (Cliff, 1985; Wilde, 1987); and time saving components (Kulik & Kulik, 1987).

Taking these conditions into account, this study was conducted to determine if students using a computer-as-manager to compute and record their scores would achieve higher RES scores and improve rate, as measured by a standardized test,

than a control group which was computing and recording their own scores. The conditions, except for the use of the computer, were the same for both groups. The program was the Sack Yourman Speed Reading Course (SYSRC), which presents reading exercises in a "natural" text format. Both groups had control over their rate of reading and were evaluated with the same procedures.

Purpose of the Study

This study is actually an extension of Wilde's (1987) study. The major purpose of the study was to determine the effects of a computer-managed rate program on the reading rate of college students. A second purpose of the study was to examine the attitudes of college students toward using the computer in a reading course.

Wilde's (1987) study involved two randomly selected groups of students who were identified as needing improvement as a result of their scores on the New Jersey College Basic Skills Placement Test (NJCBSPT). The experimental group read whole text paragraphs delivered by computer and the control group read identical stories using traditional text. Both groups were able to control their reading rates and to compute their reading scores similiarly. At the conclusion of the course,

both groups were administered the Fast Reading Subtest of the Stanford Diagnostic Reading Test (SDRT). No significant differences on reading efficiency were found regardless of the mode of delivery, computer screen vs. traditional text. Students using computers did not have to decrease their comprehension in order to increase their speed. Students using computers had more positive attitudes about their rate improvement and the use of computers for rate efficiency.

Wilde recommended the use of computers in rate improvement programs for their motivational and managerial benefits. Another recommendation was that speed reading be developed with whole text passages which closely approximate natural reading. The Sack-Yourman Developmental Speed Reading Course was suggested since it met most of these criteria. The present study was conducted to implement these recommendations.

The present study was initiated to determine if the management features of a commercially packaged speed reading course, which utilized "natural" reading passages, would affect college students' reading efficiency scores and their performance on the FRSSDRT. The conditions, except for the computer-as-manager aspect, were the same for both groups. The passages of a commercially packaged speed reading course (Sack-Yourman), were presented in traditional text form for both groups. The experimental group used the

computer-as-manager to learn about reading techniques (didactic lessons), to complete the comprehension exercises, and to calculate their time, whereas the control group did the comprehension work on paper, calculated their own words per minute, and checked their own scores.

Statement of the Problem

The purpose of the study was to answer the question: Will the use of the computer-as-manager in a commerically prepared speed reading course affect college students' reading rate and attitudes toward computers as instructional tools? Specifically: 1. Will the computer component affect reading efficiency scores? 2. Will the computer component affect rate as measured by a standardized test? 3. Will the computer component affect attitudes toward using a computer as an instructional aid?

Definitions

In this study these terms will be defined as follows:

1. Reading efficiency - a score which is obtained by multiplying words per minute (wpm) by the number of correctly answered comprehension questions. In this study students kept Reading Efficiency Scores as they read each selection.

2. Reader's flexibility - the ability to adjust his reading rate to accommodate different reading texts and tasks.

3. Computer management feature - the use of a computer to calculate and record scores and store and retrieve information.

Limitations

Taking into account the recommendations of Feeley & Wepner (1986) and Wilde (1987), the sample size was adequate, and certain design limitations were eliminated. A Computer Familiarity Survey (Appendix A) verified that the students (75% of the experimental group) had previous experience with computers. The Sack-Yourman Speed Reading Progam allowed the students to use familiar strategies while reading whole text in various "real" formats.

Attempts were made to insure internal and external validity. Unlike other isolated studies, this study was conducted over a ten week time period. Because this study was conducted with subjects enrolled in a mandatory course, there were no dropouts. The subjects in the experimental and control groups were alike in that their relatively low scores on the NJCBSFT were similar. The groups can be described as random because of the procedure for selection of the time and day (students signed up for sections that fit into their schedules), and the researchers' random assignment of the students to the two groups.

Efforts were made to control for the Hawthorne effect. All of the subjects were told that there would be a rate component in their course work, so all subjects could consider

themselves "special." If the researchers were asked about the use of the computer, they responded that the heavy schedule of the computer lab limited the number of students who could be accommodated in that facility.

The lab setting for the experimental group was a severe limitation. The old Apple II computers were slow and cumbersome and frequently defaulted, giving rise to negative attitudes among the students. It is also possible that students in the experimental and control groups "compared notes" about the experimental condition. Another limitation was that the experimental and conrol groups were taught by different instructors. Finally, because of these limitations, the results of this study are only generalizable to a similiar population of students attending a similar state college.

Significance

The results of this research study can serve as evidence that the computer-as-manager may be a useful tool in increasing the reading rate of college students. The time-saving aspect of using a computer for managerial tasks allows for more instruction and "time-on-task" for the students. The conclusions of this study could encourage further research into

the managerial benefits of using computers in college reading programs.

CHAPTER II

Review of the Literature

The goal of many junior and senior college reading programs is to increase students' reading efficiency, which is calculated by combining rate and comprehension scores (Mc Whorter, 1983). This chapter shall consider the research on strategies for improving college students' rate of reading and/or reading efficiency. Next, the role of the computer in reading rate programs will be considered. Finally, research on computer display vs. traditional text approaches will be discussed.

Researchers have studied the effects of various instructional programs on rate development. Parker and Argenti (1977) undertook an eight-week study using paired observations to investigate the instructional effects of a program in reading on the components of comprehension, vocabulary, and rate.
They concluded that reading speed is greatly enhanced as a result of systematic instruction.

Approaches to increasing reading rate by providing direct

practice are tachistoscopic training, use of the controlled reader, and Evelyn Wood-type programs. These approaches have been examined for their effects on college students' reading rate and comprehension (Carver, 1983; Lafitte, 1963; Maxwell, 1964; Rankin, 1970-71).

The controlled reader utilizes a pacing device to force students to read as fast as the print is exposed at a maintained speed. It employs continuous text and maintains the same speed throughout the selection. The Evelyn-Wood "dynamics" method attempts to replace the usual reading patterns of reading across each line in a series of fixations by a pattern in which the reader's eyes follow his finger down the page, presumably with one fixation per line. The technique also involves spending several minutes in an overview of the material, which is not included in the rate computation. Tachistoscopic training projects whole groups of words on a screen for a pre-set time to be perceived at one fixation. Research reveals that the training does not significantly increase speed or comprehension. Rather the tachistoscope's value lies in its effect on motivation and attention (Harris & Sipay, 1985).

Just and Carpenter (1987) summarized an unconventional form of rapid reading called Rapid Serial Visual Presentation (RSVP) which was developed by Forster in 1970. This, like the

tachistoscope, presented words on a screen at a fixed rate, however one word at a time. The reader has no opportunity for previewing, regressing, or re-reading. Speed is increased as a result of increased processing, not in sampling the text. These techniques yielded few benefits.

Just & Carpenter (1987) encourage educators to use caution in the development of speed reading programs. Students' increased speed may result in a decrease of comprehension. They refer to this phenonemon as a "trade-off." The most important element of a rate program is to train readers to read flexibly and vary their speed to adjust to the situation and text.

Another approach to increasing rate is simply motivated reading. Its components include timed silent reading exercises with comprehension checks and didactic lessons on varying rates for different demands. This type of instruction would seem consistent with the recommendations of Just and Carpenter (1987).

According to Robinson (1985), a present day definition of literacy must include an enlarged and more precise degree of the higher information access and reading skills associated with printed material applied to the new sophisticated electronic communication media. It is the responsibility of

teachers to equip their students with the skills to read all media, including electronic display. For instructional purposes, computers have a practical advantage in the managerial aspects of scoring, record keeping, and information retrieval (Hansen, Doring, & Whitlock, 1978). In addition they appear to have a motivational affect on students.

Most computer studies done with adults or college students have dealt with testing or isolated instructional experiences. While these studies have not addressed reading efficiency differences over time, they have revealed that students' comprehension will not be negatively affected if students have sufficient familiarity with reading passages from a screen and if they can employ familiar work habits (Askwall, 1985; Paisley, Chen, 1982).

While the video screen places new demands on viewing readers, it may be utilized to foster the very skills it requires, as well as permitting a reader to learn at his own rate (Robinson, 1983 & 1985). It is now possible to use this technology to expand readers' techniques for retrieval strategies such as regression, re-reading, skimming, and scanning.

Robinson (1985) also described earlier studies by Schmidt, Urry & Giegel, Bork, and Jones which revealed that pupils

particularly enjoyed the interactive feature of bringing up answers on the screen which provided immediate feedback and reinforcement. In 1983, Bork remarked that computers were tools and as such could be used for positive or negative results. Therefore, the critical factor is how computers should be used, and, of course, the quality of the material is crucial.

Computers have unique advantages as motivational devices, particularly in testing situations. Schmidt (1978) found that examinees had more favorable attitudes toward a test when using a computer. Computers have practical advantages for testing situations such as record keeping, time conservation, and ease of administration and scoring. They offer relief from cumbersome paper work, easy editing, and readily accessible retrieval systems (Cliff, 1985).

Interactive examination systems utilizing a computer may impede test taking time when familiar work habits cannot be employed. Hansen, Doring & Whitlock (1978) found that extra time was spent on the computer system when it did not perform as the student expected and/or performed inconsistently. Also, more time was spent when the directives were unfamiliar, unclear, and when the students could not apply their usual strategies such as underlining key words.

Askwall (1985) concurs that anxiety is created when familiar work habits cannot be employed. Paisley and Chen (1979) found that students with previous computer experience performed significantly better than students without computer experience.

Hansen et al.(1978) concluded that the benefit of using an interactive approach did justify its use. They suggested the careful design of systems and written instructions for students to decrease uncertainties. Among the benefits for students are unbiased grading, help with getting the answer into the expected format, and speedy knowledge of results.

Kulik and Kulik (1985) did a meta-analysis on 101 computer-based-education (CBE) studies conducted on the college instructional level. The typical design was a control group which received traditional classroom instruction compared to an experimental group which received CBE. The instructional outcome measured most frequently in these studies was student learning as indicated by an achievement examination given at the end of a program of instruction. Some additional outcome variables measured were performance on a follow-up or retention exam at a later date, attitudes toward computers, course completion, and amount of time needed for instruction. Three types of CBE were examined: computer assisted instruction (CAI), where the computer delivers programmed instruction and

manages individualized teaching systems; computer managed instruction (CMI), where the computer delivers and manages individualized , self-paced instructional packages that a student can select for instruction and testing; and computer enriched instuction (CEI), where the computer serves as a tool in learning in such classes as math and writing and as simulation devices in natural and social science classes.

The findings indiated that CBE generally has positive effects on college students, usually raising post-program examination scores by .26 standard deviations on the average. This figure was identical for the effect of CBE on achievement on the secondary level, but it was smaller than the average effect size of .42 for the elementary level.

The analysis did not find any significant differences in effectiveness for different types of CBE implementation. CAI, CMI, and CEI programs all made small, positive contributions to student learning. This result was very different from pre-college findings. On the elementary school level, CAI programs of drill and practice and tutorial instruction usually produced good results, whereas CMI programs produced much weaker findings. In high school both CAI and CMI produced positive results but CEI programs contributed better to student achievement. At the college level students seem to be able to adapt to a variety of computer functions in education.

CBE effects were lower in the hard, nonlife sciences than in the social and life sciences and education. CBE produced small but positive changes in student attitudes toward instuction on computers.

Little relationship was found between study findings and design features of evaluations, settings for the evaluation, or manner and date of publication of the findings. Kulik and his colleagues reported this to be a consistent finding in meta-analysis studies.

CBE effects were somewhat lower in unpublished studies than in published reports. Kulik found these differences to be not only highly significant but highly predictable and found in most meta-analytic reviews. He cites a number of factors which may account for this, such as editorial screening and/or more experienced researchers reporting in journals.

Another important finding was the reduction in instructional time. The computer groups required about 2/3 of the time required by conventional teaching methods.

Noting the many improvements which have been made on computers in recent years, Kulik and Kulik (1987) reported on four meta-analyses of 199 studies on computer based instruction (CBI), on the elementary, high school, college and

adult educational levels. Besides reiterating the results of the 1985 study, they presented the following findings: (1) students developed more positive attitudes toward computers when they received help from them in school; (2) computers had little effect in the areas of course withdrawal and attitude toward subject matter; (3) effects were greater when different teachers taught experimental and control groups; (4) effects tended to be greater in more recent studies and in those of short duration.

Kulik felt this favorable picture of CBI may be the result of editorial screening, experimental design flaws, and instructional quality. Further research on these factors was suggested.

Studies comparing the effects of computer vs. traditional text have yeilded some ambiquity. Some studies found time differences favoring print while others report that performance was better when readers used traditional print rather than using the computer monitor. Still other studies found no differences in time or comprehension between the computer or text presentations. The student's ability to apply familiar work habits to the computer may be a critical factor.

Gambrell, Bradley, & McLaughlin (1985) undertook a study using third and fifth graders to ivestigate young children's

comprehension and recall using computer display vs. traditional text. In the computer condition there was no scrolling of text and subjects controlled the "paging." Following the silent reading, subjects completed a free recall, a cued recall with literal and inferential questions, and an attitudinal survey. They found no statistically significant differences between the computer and printed page groups with a free or cued recall. They felt the computer may be a positive motivational force.

Blank, Murphy and Shneiderman (1986) compared children's reading comprehension and reading rate at three different print presentation speeds on a CRT. Expository text, no longer than three screen "pages," was presented at the speeds of 10 cps, 80 cps, and immediate mode. The fourth graders controlled the "paging." Again, no statistically significant differences in comprehension were found among the three different presentation speeds.

A study by Feldman & Fish (1987) examined the relative comprehension difficulty and the influence of reader and text characteristics on reading comprehension for texts presented in traditional form or on a microcomputer screen. Two urban, ethnically mixed samples of junior and senior high school students were used. Subjects read one type of text passage presented either on paper or on microcomputer screen and

completed a questionaire that measured their interest in, and experience with, the type of reading tasks they performed.

In the eighth grade sample, interest and experience showed no significant differences for any variable. In the high school sample, the microcomputer group fared significantly better than the print group on comprehension. In both media, strong readers found traditional texts easier to read than did weak readers. Also, readers reported no difficulties going from reading passages to their answer sheets; however, a quarter of the sample said the screen hurt their eyes. These results appear to support presentation of material in either medium.

In an experimental study by Heppner, Anderson, Farstrup and Weiderman (1985), some subjects used a computer form and some used traditional text to take the Nelson-Denny Reading Test, a standardized reading comprehension test. The researchers confirmed the findings of previous studies by Muter, Latremouille, Freiernnelt, Beam,(1982) and Hansen et al. (1978) which reported that subjects reading from a video screen required more time than subjects reading the same material from the printed page.

Askwal (1985) examined the effect that presentation had on college students' performance on a reasoning task in which

readers were asked to answer questions which required integration of information provided in a text. In one of the microcomputer presentations, all the information was on one page. In another, the subjects needed to use separate pages to integrate information. The traditional text presentation utilized the same two procedures. Fictional texts were constructed to control for the subjects' possible prior knowledge.

In contrast to the aforementioned studies, Askwall found that the reading times for the video display group and the traditional text group were remarkably similiar. Askwall suggested that the differences in findings may be interpreted to mean that reading speed is unaffected by different media for shorter periods, but negatively affected by a visual display for longer time intervals, for example, the two hours reported in the Muter et al. (1982) study. She further suggested that the time needed to complete a task which involves search depends on the search demands and the amount of information available for scanning, not on the presentation medium.

In Askwall's study, the computerized reading situation was designed to simulate the basic characteristics of a traditional text situation. Because the computer group used different search strategies and had longer processing times, it is likely that they were unsuccessful in applying search strategies which

they found useful in the traditional text situation. Askwall pointed to the 1980 research of Rumelhart & Norman and others which showed that the more closely a new situation resembles an old one, the easier it is for a person to adapt to it. Since subjects in Askwall's study were casual computer users, they may not have known the commands well enough to use them appropriately, and it was not possible for them to use their "old" strategies such as "dog-ear marking" which was used by the readers in the non- computerized situation.

The results of Askwall's study have implications for designers of computer systems. They should provide opportunities to use existing cognitive skills so the need for user planning may be reduced, and they should supply information about how a former non-computerized task would be handled in a computerized situation.

In a study done by Hoover (1977), college students used a computer video terminal (CRT) with a program designed to present text material, time the performance, and compute the rate of reading. He sought to determine if reading and comprehension would be affected by the CRT display and if the order of presentation of text passages would influence reading rate and comprehension of the subjects. The results indicated no statistically significant effects due to the type of display or the order of presentation of passages.

The same results were reported in a study by Wilde (1987) who compared two groups of college students to determine the effect of computer screen displayed text vs. traditional text on reading efficiency. The subjects in both groups used identical text with only the mode of delivery being varied. The experimental group read whole text paragraphs delivered by computer and the control group read identical stories using traditional text. Both groups were able to control their reading rate and compute their reading efficiency scores similiarly.

Wilde found the mode of presentation did not affect results. This study was an extension of a pilot study by Feeley and Wepner (1986), who reported similiar results. Feeley and Wepner concluded that rate improvement exercises, whether administered by traditional or computer modes, can improve reading efficiency. In both studies an attitudinal survey revealed a preference for computer display by the subjects. In these studies the students read natural, whole text passages, with the timing under their control. They kept their reading efficiency scores (wpm x comprehension) on graphs to note growth. Comprehension was not "traded away" for speed. The management benefit of using computers to record the subjects' rate and comprehension was supported.

Summary

Improving the reading efficiency of college students is still a priority in developmental and remedial reading programs. The use of the computer for developing this component has been suggested. While some studies have shown that reading from a video screen slows up a reader's rate, others have found no differences between reading computer-displayed or traditionally printed text. Because of the managerial benefits offered by computer technology (e.g. time keeping, immediate feedback on comprehension checks, and record-keeping), it continues to hold promise as a useful adjunct to reading efficiency programs.

CHAPTER III

Methods and Procedures

In order to determine if a commercially prepared speed reading package using the computer-as-manager would improve the reading rate of college freshmen, students were divided into two treatment groups. While both read the same passages in traditional text form, the experimental group used the computer-as-manager to read the didactic lessons, to complete the comprehension exercises and to calculate their words per minute (wpm); the control group did the comprehension work on paper, clocked their times, calculated their own wpm, and recorded their own comprehension scores.

Subjects

Setting

This study was conducted during the 1987 Fall semester at William Paterson College (WPC), one of eight college campuses

in the state college system. WPC is a multi-purpose institution composed of seven schools offering 34 undergraduate degrees.

The majority of students attending the college are from the northern New Jersey area. Although there are students who reside in the college dormitories, most of the students commute from their homes in the surrounding area. Generally, the students are from families whose income is in the lower-middle to middle socio-economic bracket. Blacks and Hispanics constitute 6.1% and 4.3% respectively of the freshmen class.

Sample

The sample selected for this study consisted of 66 college freshmen from four sections of the College Reading and Rate Improvement course, a course designed to help college students improve comprehension, study skills, and reading rate. Two of the sections were designated randomly to serve as the experimental group; the other two served as the control group. Table I shows the distribution of subjects. There were 32 females, 13 in the experimental group and 19 in the control group; of the 34 males, 17 were in the experimental group and 17 were in the control group. These students had borderline scores on the reading comprehension section of the New Jersey College Basic Skills Placement Test (NJCBSPT), qualifying them

for this second-level basic skills course (RLA 109).

The experimental group, which used the computers, were surveyed about their familiarity with computers (Appendix A). At the outset only a fourth did not know how to operate computers at all and had not used them in school. Approximately one half had used Apples before. This is understandable since most schools have computers in the Apple II family. More than 80% felt comfortable with and enjoyed working with computers.

Table I

Distribution of Subjects

	Female	Male	Total
Experimental	13	17	30
Control	19	17	36
Total	32	34	66

Instruments

Sack Yourman Speed Reading Course

The Sack Yourman Speed Reading Course (SYSRC), by Allan Sack and Jack Yourman, was published by College Skills Center, 1984. Rather than suggesting mechanical pacing or eye movement exercises, this program provides a computer course that teaches speed reading as a "thinking proccess."

The first section, Testing and Record Keeping explains the objectives of the program and diagnoses the subject's present rate and vocabulary. The diagnosis establishes a "control" rate and determines the capacity of the subject to cope with the course. The second section, Basic Communication Structures, focuses students' attention on meanings rather than on words. Students are trained to note subject matter, generalizations, and supporting details. The third section, Concept of Significance, instructs the students to extend their knowledge of basic structures which they noted in section two. The fourth section, Articles with Multiple generalities, provides practice in dealing with articles with more than one main idea. The authors suggest that this section helps to build comprehension, concentration, and retention.

The fifth section, Informational Organization, encourages students to use sectioning to determine the author's units of thought. After concluding the practice in following the author's thinking, students are provided with timed tests. In the sixth section, Organization as a Basic Study Technique, students are encouraged to organize the material they read in a logical sequence. Hints for note-taking strategies are presented. The seventh section, Problem-Solution Pattern, reinforces the ability to note the author's organizational pattern even if the material is not presented in chronological order. Thus, knowing the pattern can aid retention.

The eigth section, Thesis-Proof and Opinion-Reason Pattern, provides practice in identifying these patterns and extracting the important information. Opportunities for application and timed tests are also provided. In the ninth section, Skimminng Techniques, students are instructed that skimming is a useful tool for selective reading. In the final section, Review, Orientation and Final Testing, students review the basic principles of reading and retention, practice orientation or pre-skimming, and have a final evaluation.

Sack and Yourman (1987) present arguments in favor of and in opposition to speed reading courses. As part of their rationale in favor of speed reading programs, they point out

that fast readers can perform as well or better than slow readers and that slow readers are actually aimless, passive, inefficient, and have trouble concentrating. Students must learn to read in meaningful word groups to improve their comprehension. An efficient reader can adjust his rate to the reading tasks and demands.

The SYSRC is a very comprehensive program which provides a variety of formats to simulate "real" reading. The articles are derived from a variety of content areas and range in difficulty from the 7th grade to college and beyond. Specific instructions from the three diskettes move a student forward at his or her own pace. Timing and scoring mechanisms featured on the diskettes help students analyze their progress.

A student needs no programming knowledge to operate this program, and only the most basic experience in operating a computer. The diskette is inserted in the computer and the student follows the program's directions. The program will take care of scoring and timing for each test or timed reading in the course. All the student needs to do is record his or her scores on the progress chart.

The self-study microcomputer courseware program will determine for the student: comprehension and word-per-minute scores and averages for each test, monitor the gain and

improvement in speed and comprehension, reading time at a given word-per-minute speed, and total reading time for a timed reading. This process was used by the experimental group.

The students can also use the readings and comprehension exercises and calculate their wpm and comprehension scores without the computer. This is the procedure the control group used.

The Stanford Diagnostic Reading Test

The Stanford Diagnostic Reading Test (SDRT) measures the major components of the reading process: decoding, vocabulary, comprehension and rate. Its primary purpose is to diagnose students' strengths and weaknesses, providing more detailed coverage of reading skills than the typical survey test. SDRT test results can be used to identify trends in the reading levels of students (Karlsen, Madden & Gardner, 1984). The blue level of SDRT was first published in 1974 and is intended for use in grades nine through twelve and in community colleges.

For the purpose of this study only the Fast Reading Subtest of the SDRT was used. This measures reading

efficiency, that is, the ability to read with satisfactory comprehension at a reasonable speed and to adjust reading rate to the task. Because this subtest is speeded, very few students are expected to finish it within the time limit. In order to approximate the natural reading process and allow the students to read the passages without having to backtrack or look ahead to locate answers, the cloze procedure is used for the Fast Reading Subtest.

Validity and reliability are discussed in the test manual for an achievement test, validity is measured by the extent to which it constitutes a representative sample of the skills, knowledge, and understanding that are the goals of instruction. Since the objectives of the SDRST were written to reflect the content of reading programs in common use throughtout the country, the SDRT can be said to be valid for measuring these common objectives.

The Kuder-Richardson Formula #20 (KR20) was used to determine the internal consistency reliability of SDRT scores for all but Fast Reading, Scanning and Skimming, and Rate Total which are speeded subtests. An alternate-form reliability measure was used for the Fast Reading and Scanning and Skimming sections of the SDRT because the reliability of speeded tests is better estimated by an alternate-form reliability measure than by an internal consistency measure. The alternate-form

reliability study involved approximately 200 tenth-grade students from three schools that participated in the standardization research.

Procedures

Both the experimental and control sections of RIA 109 used the same class text (Bridging the Gap, Smith, 1986) and novel (The Fountainhead), meeting for a regular class session once a week for 75 minutes. For the second weekly class session, the control groups worked on the SYSRC in their regular classroom, while the experimental groups worked on the SYSRC in the computer lab. One instructor taught both control groups, and another taught the experimental groups. One of the researchers served as the director of the computer lab for these class sessions.

Both the control and experimental groups read the SYSRC selections in traditional text form, as found in the SYSRC books. The control groups read the didactic sections in traditional text also. They calculated their own wpm by recording starting and finishing times from a digital clock supplied by the instructor and locating the number of words for each passage in their books. They checked their comprehension scores from keys supplied by the instructor. These two

variables, wpm x comprehension score, constituted the reading efficiency scores which were charted and kept in folders. They needed every minute and frequently had to do their calculations on their own after the session. Because of the time required, most of the students in the control group finished only two-thirds plus of the SYSPC selections. It should also be noted that the instructor did not teach strategies, but directed the students to read the didactic sections by themselves. This was done to keep the two conditions equal except for the use of the computer feature by the experimental groups.

The experimental groups met in a computer lab with 20 Apple II computers. They read didactic sections of the SYSRC on the screen but the actual practice selections from their books, using the computer to time themselves and to answer the comprehension checks. The computer program gave them their wpm and comprehension scores. They copied these figures from the screen and figured out their reading efficiernсy scores for their cumulative folders, just as the control groups did. Because they spent less time doing these managerial functions, the experimental groups never needed the full period and finished the entire SYSPC in ten weeks.

Since one limitation of a previous study (Wilde, 1987) was the fact that no information was collected on the participants'

familiarity with computers, a survey (Appenddix B) of this variable was conducted. As reported under "Sample," it was learned that a large majority (approximately 75%) of the experimental group had used computers before and were comfortable with them.

To assess attitudes about using a computer program to improve rate, some items about the rate component in general and the computer feature specifically were embedded in a traditional course evaluation form completed at the end of the course. (See Appendix B).

Collection of Data

The data for this study were collected from information in the students' folders, (pre- and post-program reading efficiency scores from the SYSPC),pre- and post-tests of the Fast Reading Test of the SDRT, and evaluative/attitudinal surveys (Appendix B).

At the beginning of the study the students were administered Form H of the Fast Reading Test of the SDRT. To determine the extent to which students had worked with computers, a Computer Familiarity Survey (CFS) was given. (See Appendix A for sample). A pre-program assessment of the

reading efficiency scores was taken, based on the second score of the Sack Yourman Speed Reading Course. This second score (Program, Pre-Test), was thought to be more reliable than the first score which was generated from a training trial.

During the last two sessions of the course Form G of the SDRT (Rate, Post-Test), and the evaluative/attitudinal survey were administered. The last reading efficiency score of the last selection read in the SYSRC served as the post-test for the program.

Treatment of the Data

The experimental group was using the SYSRC program with the complete computer management system while the control group used the program without the computer feature. To see if the use of the computer management feature would affect performance on the post-program reading efficiency scores, the last scores (Program, Post-Test), were subjected to analysis of covariance procedures (Sex X Treatment), with the post-test scores serving as the dependent variable. To see if any improvement in rate gained from the SYSRC would transfer, the post-test scores on the rate subtest of the SDRT were subjected to an analysis of

covariance (Sex X Treatment), with the post-test scores serving as the dependent variable.

Analysis of covariance procedures were used because an analysis of variance (Sex X Treatment) done on the pre-test scores of the SDRT rate test showed that the scores of the experimental group ($\underline{M}$ = 17.27) were significantly higher than those of the control group ($\underline{M}$ = 15.00), $\underline{F}(1,65) = 3.86$, $\underline{p}<.05$. The analysis of variance done on the pre-program reading efficiency scores validated the differences in the groups ($\underline{F}$ = 4.69, $\underline{p}<.03$). Analysis of covariance is recommended when groups in an experimental study are found to differ from the start.

The information from the evaluative/attitudinal surveys were reported descriptively.

Summary

In this chapter the subjects, four sections of freshmen at Willian Paterson College attending the College Reading and Rate Improvement course, were described. Next, the instruments, the Fast Reading section of the Stanford Diagnostic Reading Test and the Sack Yourman Developmental Speed Reading Course were discussed. This was followed by an

outline of the procedures used. The concluding sections of the procedures described the collection and treatment of data. In the following chapter, results will be reported and discussed.

CHAPTER IV

Wilde (1987) reported that college students improved their reading rate equally as well whether completing rate exercises delivered by computer or by traditionally printed text. Howevever, since she found that the computer group, when compared with the traditional text group, performed better on the rate materials (Speed Reader II) and appeared more positive about the rate component of their course, Wilde concluded that computers appear to offer students and instructors benefits that may justify their use. Accordingly, in this extension of Wilde's work, college students worked on improving their reading efficiency by reading interesting whole-language selections found in the SYSRC, with the experimental group using the computer management features (e.g. time-keeping, comprehension check), while the control group clocked their own WPM and checked their own comprehension answers.

Results

To see if using the computer feature would affect students' reading efficiency scores, the pre-and post-program reading efficiency scores were subjected to analysis of

covariance (ANCOVA) procedures (sex x treatment), with the post-program scores serving as the dependent variable. There were no main or interaction effects. Table 2 reports the means. Although all sub-group means show a gain of approximately 100-150 points, the differences were not significant because the post-program scores were so widely dispersed (note large standard deviations for post-test means).

To see if any gains in reading efficiency would transfer beyond the program, the pre-and post-test means on the rate test of the SDRT were subjected to ANCOVA procedures (sex x treatment), with the post-treatment scores serving as the dependent variable. The main effects of treatment and pre-test were significant; there were no significant interaction effects. Treatment, F (1,65)=9.70, $p<.002$, and pre-test scores, F (1,65) =18.03, $p<.0001$, were factors.

As seen in Figure 1, the experimental group, which used the computer feature, went from 17.27 to 24.30 on the SDRT, while the control group, which read the same passages without the computer feature, went from 15.00 to 19.53. The total group started with a mean of 16.03 and ended with a mean of 21.70. Although the total group showed growth in reading rate as indicated by these test scores, the experimental group's gains were significantly greater than those of the control group.

Table 2

SY Program Scores: ANCOVA Means (Sex x Treatment x Trials)

	Pre-Test		Post-Test	
	Male N=34	Female N=32	Male N=34	Female N=32
Experimental	135.47 (38.03)	142.00 (50.25)	210.00 (63.71)	233.31 (112.17)
Control	111.88 (23.79)	126.16 (35.25)	219.47 (170.11)	245.63 (102.22)

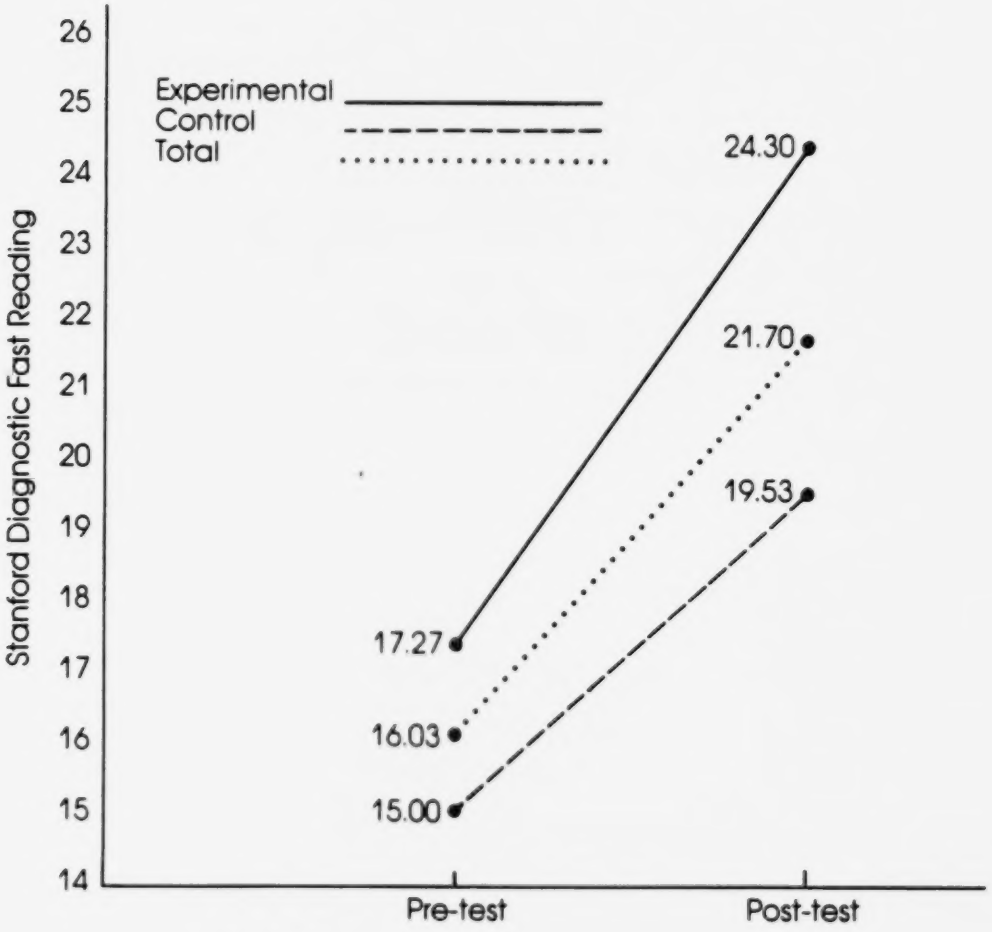

Figure 1.

Pre- and post-test means for experimental, control, and total groups on the Stanford Diagnostic Fast Reading Test.

Table 3 shows the means for the attitudinal survey items which were rated on a four-point scale with four being the highest. While both groups rated their degree of improvement in comprehension, study skills, and rate of reading from To some extent to Greatly (means ran from 2.13 to 2.69), the control group appeared to be more positive. When asked to evaluate the course components, again, the control group was generally more positive, especially about the rate exercises (3.0) and the class texts (3.04). These findings differ from Wilde's 1987 study in which the experimental computer group was generally more positive about the course, especially the rate exercises delivered entirely by the computer.

To more directly assess attitudes toward working with computers, students were asked to evaluate the use of computers to improve reading skills. (Table 4). To the statement, "Given the opportunity, I would use the computer for general reading development," the experimental group said Yes 31% of the time and Maybe 48% of the time with 21% saying No; while the control group said Yes 36% of the time and Maybe 57% of the time with only 7% saying No. To the statement, "Given the opportunity, I would use the computer for rate improvement exercises, the experimental group said Yes 43% of the time and Maybe 43% of the time with 15% saying No; while the control group said Yes 38% of the time and Maybe 46% of the time with only 15% saying No. Both groups seemed to have similiar attitudes toward

Table 3

Course Evaluation: College Reading and Rate Improvement

Item	Experimental	Control
A. To what extent do you think this course has helped you to improve...	(Very Greatly = 4; Greatly = 3; To Some Extent = 2; Not At All = 1)	
1. General comprehension	2.29 (.63)	2.55 (.55)
2. Study skills	2.13 (.49)	2.69 (.72)
3. Rate of reading	2.45 (.66)	2.62 (.85)
B. To what extent did you find the following course components helpful?	(Very Helpful = 4; Helpful = 3; Of Some Help = 2; Of No Help = 1)	
1. Text	2.16 (.68)	3.04 (.79)
2. Novel (The Fountainhead)	2.00 (.1.07)	2.30 (.98)
3. Rate exercises	2.38 (.92)	3.00 (.69)
a. Content of exercises	2.30 (.69)	2.79 (.52)
b. Difficulty of rate exercises	2.29 (.77)	2.59 (.75)
c. Pace of presentation	2.18 (.65)	2.79 (.66)
d. System for self-assessment of program	2.29 (.58)	2.83 (.83)
e. Book used for rate improvement	2.43 (.67)	2.34 (.49)
f. Format of presentation	2.16 (.67)	2.71 (.75)

Table 4

Attitude Toward Interest in Using the Computer for Reading Development

	N	Yes		Maybe		No	
		F	%	F	%	F	%
Question: "Given the opportunity, I would use the computer for general reading development."							
Experimental	30	31		48		21	
Control	36	36		57		07	
Question: "Given the opportunity, I would use the computer for rate improvement exercises."							
Experimental	30	43		43		14	
Control	36	38		46		15	

using computers. In fact, the experimental computer group seemed to be less positive than their non-computer controls; it appears that these college students were more tentative than those in the Wilde study (1987).

There were external variables that may have had an adverse effects on the attitudes of the experimental group. First, they were using old Apple II computers which would frequently default. Mid-semester they experienced a change of instructors. When their original instructor had to leave for emergency medical reasons, she was replaced by substitutes until two permanent instructors could be hired to finish the semester. The computer instructor found them negative and unresponsive from the start. This attitude is reflected in their comments such as: "This course is boring and pretty useless;" "It was kind of boring, but an OK book;" "We could have the same stuff without the computer."

On the other hand the control group functioned as a more positive, homogeneous group from the start. For the whole semester they had a seasoned instructor whom they respected. She reported they were hard workers who were on task most of the time. This was reflected in comments such as: " Course contained a lot of study skills I could use in the future;" "Helped in my other subjects also;" "Text was very interesting, not the usual boring kind;" "Improved rate;"

"Course definitely needed for a lot of students. Helped you better comprehend in all areas."

Discussion

The results of this study are consistent with those of other studies on the beneficial effects of computer assisted instruction, with the exception of the negative attitudinal biases of the experimental group toward the computer component. This unfavorable attitude was probably caused first by the poor lab conditions and second by the unfortunate change in instructors mid-way through the semester. The cumbersome commands and frequent defaulting of the older Apple II computers caused frustration from the start. When new instructors began to appear on the scene, the experimental groups became more frustrated. However, despite these negatives, they did finish the total SYSRC and significantly improved their rate.

The results were commensurate with many of the findings of a meta-analysis of hundreds of CBE studies by Kulik & Kulik (1985 &1987), which showed that CBE made a small but significant contribution to student achievement on the college level. Most significant was the time-saving component of using

computers as managers. Kulik's findings that CBE reduced instructional time by 32% corresponded precisely with the findings of this study in which the control group completed only two thirds of the rate exercises without the management of the computer. This may have indirectly contributed to the significant gains in achievement accomplished by the experimental group, which completed the entire SYSRC, by allowing for more time-on-task and practice in less time. Therefore, the managerial use of the computer, as recommended by Wilde (1987) and Hansen et al. (1978), was found to be beneficial.

The SYSRC was found to be effective in increasing reading efficiency, while it provided interesting text in "natural" formats, and encouraged flexible reading as recommended by Just and Carpenter (1987). Most students found the content interesting and were happy with the organizational and study skills presented in the program. The computer management component which helped students calculate and track their scores was an option which resulted in a decrease in instructional time and an increase in the students' rate as measured by a standardized test.

In another study by Nemeth (1988) the SYSRC, along with the teaching of study skills and test-taking strategies, was used with a small group of nursing students who were in danger of

being dismissed from the nursing program at WPC because their grades were at the "C" level and considered to be educationally unprepared. Over a three month period there was an average increase of 28% in their reading rate and 33% in their comprehension scores. Resentful at first, in their exit interview these students indicated that they thought the program was beneficial to them in their academic studies and had increased their ability to use the computer as an instructional aid.

Summary

While all students in a college reading course made gains in reading efficiency while using the SYSRC, those who used the computer management feature made greater gains (possibly because they completed the entire program) in less time than did the non-computer controls. This occurred despite the negative attitudes of the experimental groups caused by unfortunate setting variables such as an inadequate computer lab and changes in instructors. The findings of this study support the use of the computer for the managerial benefits it can offer, especially in rate components of college reading courses in which "chore" operations can be performed quickly and easily, thus allowing more time for practice in reading.

CHAPTER V

Summary, Conclusions, Recommendations

This study was an extension of studies done by Feeley & Wepner (1986) and Wilde (1987). In researching the effect of computer-displayed text vs. traditional text on college students' reading efficiency, Feeley & Wepner and Wilde found no differences related to the treatment effect of using the computer. However, Wilde found the managerial use of computers to be worthwhile and recommended further research in which students in rate improvement programs read regular text and used the computer to compute their rates and check their comprehension scores. Another recommendation was the use of the Sack Yourman Speed Reading Course (SYSRC) since it is a comprehensive program incorporating "natural" reading passages, encouraging flexible reading, and offering a computer management option.

In the present study, a large sample of college freshmen in a prescribed reading course was used and refinements were made to insure validity. Subjects in both experimental (N=30) and control (N=36) groups read the SYSRC selections in traditional text form and were administered pre-and

post-program tests. The experimental group had a computer to assist them in calculating their wpm and comprehension checks, while the controls did these chores by hand. According to a computer familiarity survey, a large majority of the experimental group were comfortable using computers.

. At the beginning and conclusion of the course both groups were administered forms of the Fast Reading Subtest of the Stanford Diagnostic Reading Test. Reading efficiency scores from the second and last selections of the SYSRC were also used for assessment. To evaluate attitudes toward the use of computers in a rate program, the students completed a course evaluation at the end of the semester.

To see if the computer feature would affect students' reading efficiency scores, the last reading efficiency scores on the SYSRC were subjected to ANCOVA procedures (sex x treatment), with the post-program scores serving as the dependent variable. There were no significant main effects or interaction effects. Although both groups made gains of 100 to 150 points, they were not significant because the scores were so widely dispersed.

To see if gains in reading efficiency would transfer beyond the program, the pre-and post-test means of the SDRT were subjected to ANCOVA procedures (sex x treatment), with the

post-treatment scores serving as the dependent variable. The main effects of treatment and pre-test were significant; there were no significant interaction effects. Although the total group showed growth in reading rate, the experimental group's gain of seven points was greater than the control group's gain of 4.5 points. The transfer measure shows that computers-as-managers are effective and can affect student academic performance.

Consistent with the findings of Kulik & Kulik (1987), an important factor which emerged in the study was the time-saving component of using computers-as-managers. The experimental group which used the computers completed the entire SYSRC, while the control group who used the course without the computer required much more time and completed only two-thirds of the same course. This time efficiency factor may have prompted the greater gains shown on the rate test by the experimental group.

Usually students are motivated and have positive attitudes toward computers and courses when CMI is used. This study did not uphold this finding possibly due to two very big negative features: old computers which defaulted frequently, and a change of instructors mid-semester. Also, this particular group may be an anomaly and not representative of "average" college freshmen but more negative in nature.

As in the Nemeth (1988) study, the SYSRC was found to be effective in increasing students' reading efficiency by providing exercises in whole-language text and "natural" formats. Students' comprehension was not "traded-away" and most felt the course was beneficial.

Major Conclusions

Several major conclusions emerged from this study:

1. Programs like the Sack Yourman Course, which promote flexibility in reading rates and which are based on the reading of interesting, natural-language texts under timed conditions with simple comprehension checks, can be effective in increasing the reading efficiency of college students.

2. Using the computer for managerial chores such as timing, calculating wpm, and answering comprehension questions can make a rate course more efficient by reducing instructional time. (The non-computer group finished only two-thirds of the course in the same

amount of time that the computer group completed the entire course. While most of the computer group often finished their selections before the 75 minute lab was over, the non-computer controls frequently worked overtime and had to complete records on their own time.)

3. If computers are to be used, labs should contain the latest and most efficient equipment and be staffed by aides who can assist students with technical aspects. Otherwise, students can easily become frustrated and develop negative attitudes about reading improvement courses and using computers for instructional purposes.

Recommendations

The following recommendations are offered:

For Educators Concerned with College Reading

1. Since the Sack Yourman Speed Reading Course was successful in increasing the reading efficiency scores

of college students and because they generally found the course interesting and helpful, it is recommended for use in college rate improvement courses.

2. Since the management feature of computers was found to be effective in decreasing the amount of time students needed for non-task activities, they had more time to practice reading. It is therefore recommended that computers be used in rate improvement courses for their obvious managerial benefits. State-of-the-art equipment should be used with adequate support services. Instructors must know the software and hardware before using it with a class, and they should have technical aides to assist with lab classes.

For Researchers

Further research is indicated in the area of using computers-as-managers, especially for rate improvement. This study should be replicated with a similar population, only using state-of-the-art computers and controlling for the instructor variable. Different instructors for the experimental and control conditions and the replacement of the instructor in the experimental groups were serious limitations of this

study, and Kulik and Kulik (1987) found that effects were greater when instructors were different.

If the same instructor could teach both groups and have access to a fully-equipped computer lab for the experimental group, even greater gains may be demonstrated and, hopefuly, positive attitudes toward rate improvement and CMI will be promoted.

References

Askwall, S. (1985). Computer supported reading vs. reading text on paper: A comparison of two reading situations. International Journal of Man-Machine Studies, 22, 425-439.

Blank, D., Murphy, P.A. & Shneiderman, B. (1986). A comparison of children's reading comprehension and reading rates at three text presentations speeds on a CRT. Journal of Computer-based Instruction, 13, 84-87.

Bork, A. (1983). Computers & Learning: A Compendium of Papers. (ERIC Document Reproduction Service No. ED 239 591)1

Carver, R.P. (1983). Is reading rate constant or flexible? Reading Research Quarterly, 18, 190-215.

Cliffe, M.J. (1985). Microcomputer implementation of an idiographic psychological instrument. International Journal of Man-Machine Studies, 23, 89-96.

Feeley, J.T. & Wepner, S.B. (1986 October). Rate improvement in college: the computer vs. traditional text. Paper presented at the meeting of the College Reading Association, Knoxville, TN.

Feeley, J.T. & Wepner, S.B. (1987 May). College students' reading efficiency with computer-presented text. Paper presented at the meeting of the International Reading Association Conference, Anaheim, CA.

Feldman, S.C. & Fish, M.C. (1987 April). Reading comprehension of high school students on print vs. microcomputer-generated text. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Gambrell, L.B., Bradley, M., & McLaughlin, E. (1985). Young children's comprehension and recall of computer screen dispayed text. Paper presented at the meeting of the College Reading Association, Pittsburgh, PA.

Hansen, W.J., Doring, R., & Whitlock, L.R. (1978). Why an examination was slower on-line than on paper. International Journal of Man-Machine Studies, 10, 507-519.

Harris, A.J. & Sipay, E.R. (1985). How to increase reading ability (8th ed.). New York: Longman.

Heppner, F.H., Anderson, J.G.T., Farstrup, R.E. & Weiderman, N.H. (1985). Reading performance on a standardized test is better from print than from ccomputer display. Journal of Reading, 28, 321-325.

Hoover, T. (1977). Empirical study of reading and comprehension as a function of CRT display. (ERIC Document Reproduction Service No. Ed 161 002)

Just, M.A. & Carpenter, P.A. (1987). The psychology or reading and language comprehension. Boston: Allyn and Bacon.

Lafitte, R.G. (1963). Analysis of increased rate of reading of college students. New developments in programs and procedures for college-adult reading, 12, 110-111.

Karlsen, B. & Gardner, E.F. (1985). Stanford Diagnostic Reading Test (3rd ed.) [Norms Booklet]. U.S.A.: Harcourt Brace Jovanovich, Inc.

Kulik, C.L. & Kulik, J.A. (1985 March). Effectiveness of computer-based education in colleges. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Kulik, J.A. & Kulik, C.L. (1987 February). Computer based instruction: what 200 evaluations say. Paper presented at the annual convention of the Association for Educational Communications & Technology, Atlanta, GA.

Mathis, W., & Senter, D.R. (1973). Quantification of contributions made by various reading instrument combinations to the reading process. (Report No. EDL-RIR-7). New York: Educational Development Laboratories (ERIC Document Reproduction Service No. ED 082 121)

Maxwell, M.J. (1964, December). An experimental investigation of the effect of instructional set and information on reading rate. Paper presented at the National Reading Conference, Dallas, TX.

Maxwell, M.J., & Mueller, A.C. (1965). An experiment on the effect of motivational appeal vs. techniques upon reading rate improvement in a group of college students. Report No. RR-65-04). College Park, MD: University of Maryland. (ERIC Document Reproduction Service No. ED. 011 490)

McConkie, G. (1984). The reader's perceptual processes. In G.G. Duffy & L.R. Roehler (Eds.), Comprehensive instruction: Perspectives and suggestions (pp. 10-25). New York: Longman.

McWhorter, K.T. (1983). Efficient and flexible reading. Boston: Little, Brown.

Muter, P., Latremouille, S.A., Treurniet, W.C., & Beam, P. (1982). Extended reading of continuous text on television screens. Human Factors, 24, 501-508.

Nemeth, H. (1988). Advanced reading project. Report prepared for the School of Health Professions and Nursing, William Paterson College, Wayne, N.J.

Paisley, W. & Chen, M. (1982). Children and electronic text: challenges and opportunities of the "new literacy": An exploratory study. Stanford, CA; National Institute of Education Grant No. 81-0098. (ERIC Document Reproduction Service No. ED 225 530)

Parker, C.W. & Argenti, R.M. (1977). The reluctant collegiate reader. (ERIC Document Reproduction Service No. ED 153 198)

Rankin, E.F. (1970-71). How flexibly do we read? Journal of Reading Behavior, 31, 34-38.

Robinson, B. (1983). Reading and the video screen. M.E.R.: No. 2 (ERIC Document Reproduction Service No. ED 257 429)

Robinson, B. (1985). Media in educational research: Are the new electronic media a threat to literacy or a challenge for the literate? British Journal of Educational Technology, 16, 42-58.

Sack, A. & Yourman, J. (1987). The Sack Yourman Speed Reading Course (5th ed.). Maryland: College Skills Center.

Schmidt, F.L. Urry, V.W. & Gugel, J.F. (1978). Computer assisted tailored testing: Examinee reactions and evaluations. Educational and Psychological Measurement, 38, 265-273.

Thompson, H.W., Saha, H., & Wang, H. (1980 Dec.). Computer assisted instruction: An innovative approach to the development of comprehension at the college freshman level. Paper presented at the annual meeting of the American Reading Conference, Sarasota, FL.

Wilde, S.L. (1987 May). Reading efficiency: computers vs. traditional text. A graduate project presented to the Faculty at William Paterson College, Wayne, N.J.

Appendix A

Computer Familiarity Survey

Name _____

Course/Section _____

Date _____

1. I know how to operate microcomputers.

Yes ___ No ___ Uncertain ___

2. I know how to operate microcomputers from the Apple II family.

Yes ___ No ___ Uncertain ___

3. I have worked with microcomputers in school.

Yes ___ No ___ Uncertain ___

If yes, for how many years?

0-5 years ___ 6-10 years ___ 11-15 years ___ 16-20 years ___

21 or more years ___

If yes, what type of computer?

___ Apple ___ IBM ___ Commodore ___ Atari ___ Radio Shack

___ Other (please specify) _____

4. I have worked with microcomputers at home.

Yes ___ No ___ Uncertain ___

If yes, for how many years?

0-5 years ___ 6-10 years ___ 11-15 years ___ 16-20 years ___

21 or more years ___

If yes, what type of computer?

___ Apple ___ IBM ___ Commodore ___ Atari ___ Radio Shack

___ Other (please specify) _____

5. I feel comfortable working with computers.

Yes ___ No ___ Uncertain ___

6. I enjoy working with computers.

Yes ___ No ___ Uncertain ___

Appendix B

RLA 109 COLLEGE READING AND RATE IMPROVEMENT

Fall 1987

Evaluation Survey

Check one: _____ Computer Text _____ Traditional Text

A. To what extent do you think this course has helped you to improve.	Very Greatly	Greatly	To some extent	Not at all
1. General comprehension:	1.			

Comments:

2. Study skills: 2.

Comments:

3. Rate of reading: 3.

Comments:

B. To what extent did you find the following helpful?	Very Helpful	Helpful	Of some help	Of no help
1. Text (Bridging the Gap)	1.			

Comments:

2. Novel (The Fountainhead) 2.

Comments:

	Very Helpful	Helpful	Of some Help	Of no Help
3. Rate exercises (Sack-Yourman Speed Reading)				
	3.			
a. Content of exercises	3a.			
b. Difficulty of passages	3b.			
c. Pace of presentation	3c.			
d. System for assessing progress	3d.			
e. Book used for rate improvement	3e.			
f. Format of Presentation	3f.			

(Computer Text or Traditional Text)

Comments:

Suggestions: (Please make any suggestions you may have about the rate component).

Given the opportunity, I would use the computer for general reading development. Yes ____ No ____ Maybe ____

Comment on any difficulties you might have had in working with the computer:

Given the opportunity, I would use the computer for rate improvement exercises. Yes ____ No ____ Maybe ____